

## PETRELS, SHEARWATERS AND OTHER OCEANIC BIRDS IN THE NORTH INDIAN OCEAN

BY

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Since the publication in the *Journal* in December 1950 of my paper on 'Wilson's Storm-Petrels, Shearwaters and other Sea-birds in the Gulf of Aden and Indian Ocean', I have crossed the Indian Ocean from Colombo to Aden and back once again, and have been able to make further observations on the oceanic birds of that part of the Ocean that lies between these two ports. The first voyage outwards from Colombo took place in early February 1953 and, as usual at that time of the year in these waters, oceanic bird life was very scarce until we arrived in the vicinity of Socotra and the Gulf of Aden, where shearwaters and phalaropes in small numbers were observed. No small petrel of any species was observed on this voyage. On the return journey in early August 1953, there were no phalaropes, but petrels and shearwaters were plentiful, as expected, and were observed in greater or lesser numbers each day until we entered Colombo Harbour. On this voyage, three Wilson's Petrels (*Oceanites oceanicus*) and one Mascarene Black Petrel (*Pterodroma aterrima*)<sup>1</sup> were caught on deck after dark; they were all released the following mornings after thorough examination. Small white-bellied petrels—believed, in spite of Gibson-Hill's statement (p. 446) that there are no reliable sight records of these species from our area, to have been either the Blackstreaked Storm Petrel (*Fregetta tropica*) or more probably the Whitebellied Storm Petrel (*F. grallaria*)—were fairly plentiful on one day near lat. 10°24'N. and long. 63°25'E. on this voyage.

On our return to Colombo, through the good offices of Mr. D. D. Condon of the United Kingdom High Commissioner's Office I was placed in touch with Mr. G. N. Grisenthwaite, Fishery Expert in trawler 'Braconglen' which makes regular trips from Colombo to the fishing grounds to the west of Cape Comorin. On his voyages, Mr. Grisenthwaite has made some valuable observations on the oceanic birds—chiefly Wilson's Petrels and shearwaters—that he has encountered; extracts from his notes are given at the end of this paper, including his interesting record of the migration of Wilson's Petrels.

In the following notes from my diaries, I have condensed my observations and confined them to the pelagic birds observed on each voyage.

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<sup>1</sup> Mackworth-Praed and Capt. Grant, in their 'Birds of Eastern and North-Eastern Africa,' Vol. I, call this bird *Bulweria brevirostris*, but Mr. W. B. Alexander informs me that this name appears to be incorrect.

HOMEWARD VOYAGE. M. V. 'Derbyshire'

(10,625 TONS. E. D. BRAND, MASTER)

Colombo to Aden—February 6th to February 12th 1953

February 6th. 08.45 hrs. Left Colombo Harbour; sunny with slight breeze; visibility excellent.

09.45 hrs. Flock of about 30 Bridled Terns (*Sterna anaethetus*) passed flying south.

12 Noon Lat. 7.06 N. Long. 79.07 E. Distance from Colombo 43 miles; average speed 14.33 knots.

12.10 hrs. Single tropic-bird (*Phaethon* sp.) flew past and vanished astern; it flew very rapidly at varying heights from just above to 100 ft. or more from the water.

14.30 hrs. to dusk. Visibility excellent; no other birds seen.

February 7th. Indian Ocean.

06.00 hrs. to Noon; flat calm; no wind; no birds.

12 Noon. Lat. 08.04 N. Long. 73.03 E. Distance run 370 miles; average speed 15.10 knots.

12.05 hrs. Passing Minicoy, distant about 15 miles; two solitary Frigate Birds (*Fregata* sp.) far away to south.

14.00 hrs. to dusk. Visibility excellent; no birds seen.

February 8th. Indian Ocean.

06.15 hrs. to Noon. Bright, sunny; slight breeze; visibility excellent. No birds seen.

12 Noon. Lat. 09.11 N. Long. 66.51 E. Distance run 376 miles; average speed 15.35 knots.

Afternoon to dusk. No birds seen.

February 9th. Indian Ocean.

06.10 hrs. to Noon. Bright and sunny; slight breeze; visibility excellent; no birds seen.

12 Noon. Lat. 10.12 N. Long. 60.57 E. Distance run 376 miles; average speed 14.53 knots.

to 16.30 hrs. Visibility excellent; no birds seen.

16.44 hrs. to 16.55 hrs. Two tropic-birds appeared and flew together, round and over the ship, for about 10 minutes; they seemed to be Indian or Smaller Redbilled Tropic-bird (*P. indicus*).

17.20 hrs. to dusk. Two tropic-birds again flying round the ship; either the same two as seen before or a fresh pair; they were seen in a good light and were undoubtedly Indian Tropic-birds. No other birds seen before dusk.

February 10th. Indian Ocean.

06.10 hrs. Sea smooth, very slight breeze, visibility excellent.

06.15 hrs. to Noon. A tropic-bird appeared from over our bows and spent the next 15 minutes flying rapidly round and over the ship; it generally flew some 100 to 150 ft. above the sea, shook itself several times and spread its tail when banking to turn sharply; beak

yellow, tail short with black tips to white feathers; black and brown on wings and upper parts; probably a juvenile Indian Tropic-bird (*P. indicus*). No other birds seen.

12 Noon. Lat. 11.18N. Long. 54.49E. Distance run 369 miles; average speed 15.07 knots.

to 15.30 hrs. Visibility excellent; no birds.

15.50 hrs. Single, medium-sized shearwater (*Puffinus* sp.) flying low over water in usual shearwater manner, a long way out on port side; appeared to be dark brown all over.

16.20 hrs. Another solitary shearwater of same species.

16.55 hrs. Another shearwater, closer to starboard; dark brown all over but rather darker on the upper parts; we are now about 60 to 70 miles south of Socotra and appear to have entered the habitat of a resident species of shearwater which looks very like the Wedge-tailed (*Puffinus pacificus*).

17.10 hrs. Another shearwater of the same species; dark brown in colour with rather long, pointed wings.

17.40 hrs. Party of 4 phalaropes (*Phalaropus* sp.) flying rapidly west close over the water, twisting and turning with the sun lighting up their white under parts. Another dark brown shearwater. Islets off the south of Socotra are now in sight about 30 miles to northwards.

February 11th. Gulf of Aden.

05.30 hrs. to 06.15 hrs. Bright sunny morning; wind steady from NE.; slight breeze and swell; visibility excellent. African Coast is in sight to port.

06.20 hrs. Solitary phalarope crossed our bows flying south.

06.30 hrs. Tropic-bird in distance.

07.40 hrs. Two shearwaters crossed our bows flying rapidly northwards; light excellent; both were very dark sooty brown above and only a little lighter below; wings long and pointed, tail also longish and rather pointed; they appear to be Wedgetailed Shearwaters (*P. pacificus*).

08.10 hrs. A smaller species of shearwater, white on the lower parts, flying some distance away on the port bow. Five phalaropes crossed our bows, flying close over the sea towards the African coast.

08.55 hrs. Dark brown shearwater followed by a smaller species with white under parts; the second one would appear to be the Persian Shearwater (*P. lherminieri persica*) which is well-known to be resident in these waters.

09.50 hrs. to 10.30 hrs. 4 dark brown shearwaters (*P. pacificus* ?) crossed our bows, flying N.

10.40 hrs. Another dark brown shearwater crossed our bows flying N; this one flew close to us and was almost certainly a Wedgetailed Shearwater.

12 Noon. Lat. 12.17N. Long. 48.53E. Distance run 354 miles; average speed 14.44 knots.

15.05 hrs. Single phalarope and single dark brown shearwater passed flying low over water.

15.12 hrs. Another solitary phalarope appeared close to our port bow. It flew a little distance and settled on the water for a minute



or so; it rode very upright with the neck held straight up. In appearance, it was a small white bird with a blue grey back; in flight the white wing bar is very noticeable; all seen have flown close over the water with the sun glistening upon them; they give the impression of small white and bluish grey birds. Probably the majority of them are Rednecked Phalaropes (*P. lobatus*) but some of them may be the Grey Phalarope (*P. fulicarius*); it is most difficult to identify the species, with any certainty, from the deck of a liner.

15.15 hrs. to 15.30 hrs. 4 dark brown shearwaters passed, flying singly; one settled on the sea directly in our course; it took to flight and wheeled off as the ship approached; all these shearwaters are rather slim birds with long pointed wings and longish, rather narrow tails.

15.35 hrs. Two more phalaropes flying E., followed by another dark brown Shearwater 500 yds. to port.

16.18 hrs. A Persian Shearwater wheeling to port, the sun glistening on its white under parts.

16.40 hrs. Two more phalaropes.

17.00 hrs. Two tropic-birds, flying round ship; both appeared to be Indian Tropic-birds (*P. indicus*) with long white tail streamers.

17.25 hrs. Another solitary phalarope passed.

We entered Aden Harbour during the night. It will have been noted that, with the exception of the phalaropes, the frigates, and the tropic-birds only two species of shearwaters were seen and no other petrels at all. As the voyage took place during early February, when normally all Southern Hemisphere nesting birds, i.e. the migratory petrels and shearwaters, would still be in southern latitudes, this is exactly what one would expect. Whenever I have passed through the Gulf of Aden and waters adjacent to Socotra, I have invariably observed two species of shearwaters, one moderately large and dark which I believe to be a race of the Wedgetailed Shearwater (*P. pacificus*) and the other smaller, sooty black above and white below, which I was misled in my former paper into calling the Dusky Shearwater (*P. assimilis*) but which now appears to be the Persian Shearwater (*P. lherminieri persica*). There cannot be any doubt, I think, that both these shearwaters are resident in these waters, all the year through; presumably they breed in Socotra and/or the adjacent islets. I have given by diary in full with regard to the sighting of these shearwaters in order to show their density in these waters. Phalaropes are always present around Socotra and in the Gulf of Aden during the winter months; I have seen many of them but almost always on the wing; I believe most of them are the Rednecked Phalarope (*Phalaropus lobatus*) but some of them may be the Grey Phalarope (*P. fulicarius*). I am not sufficiently familiar with the two species to be able to distinguish them on the wing at a distance.

My return voyage took place during early August while the Southern Hemisphere shearwaters and petrels were still in their northern haunts; many more oceanic birds were, therefore, to be observed in the Indian Ocean. On this voyage I had the pleasure of the company of Mr. D. D. Condon of Colombo who spent many hours bird-watching with me.

## OUTWARD VOYAGE. M. V. 'Derbyshire'

(10,625 TONS. E. D. BRAND, MASTER)

Aden to Colombo: August 4th to August 10th 1953

August 4th. Gulf of Aden. Left Aden about 08.10 hours.

09.15 hrs. One Wilson's Petrel and 20 to 30 Large Crested Seaterns (*Sterna bergii*) passed. Wind strong from S.; slight swell and a little choppy; visibility fairly good with some distant haze.

09.20 hrs. Liberated Wilson's Petrel which had been caught on deck about 20.30 hrs. the evening before. This petrel has a subdued double call-note like a child's squeaker; it was a very gentle bird and did not struggle to escape.

11.20 hrs. Several Wilson's Petrels, all flying independently close over waves; none in wake.

11.45 hrs. to Noon. Large numbers of Wilson's Petrels flying across our bows and in lee of ship, 100 yds. or so port; several hundreds in sight at one time. Often they paddle and feed on the water.

12 Noon. Lat. 12.43N. Long. 45.50E. Distance from Aden 53 miles; average speed 14.95 knots.

12.15 hrs. Still many Wilson's Petrels to be seen.

12.30 hrs. Small numbers of Wilson's Petrels still about but large concentrations, as seen between 11.45 to 12.15 hrs., now passed. All these petrels appeared to be Wilson's (*Oceanites oceanicus*).

12.45 hrs. Still many Wilson's Petrels; one shearwater, black and white, passed some distance away.

13.45 hrs. Many Wilson's Petrels crossing bows, flying southwards and in lee of ship.

15.00 hrs. 100 to 150 Wilson's Petrels now in our wake; they look like a swarm of immense bees; small numbers flying across bows and to leeward.

15.10 hrs. Small sooty brown shearwater seen by Mr. Condon.

15.37 hrs. Single, rather small, blackish shearwater crossed our bows flying S.

15.45 hrs. Three Brownwinged Terns (*Sterna anaethetus*), beating S. against strong wind, crossed our bows; Wilson's Petrels still plentiful. Sea very choppy with moderate swell and confused waves; sunny with some cloud; visibility excellent.

16.00 hrs. to 16.45 hrs. 200 or more petrels in our wake, flying to and from across the smoother water; all appear to be Wilson's.

17.30 hrs. Still hundreds of Wilson's Petrels in our wake and many flying round ship; they remained until it became too dark to see them properly. Small numbers (about 12) Brownwinged Terns flying S.

August 5th. Gulf of Aden (approaching Socotra).

05.50 hrs. Some swell but no breaking waves; sky overcast; light breeze; visibility good with horizon hazy.

06.00 hrs. Passed 'rafts' of several hundreds of Wilson's Petrels; many on water, others taking wing and flying off presumably to feed; none in wake. On other voyages also I have observed large rafts

of these petrels on the water in the very early morning; apparently they collect to spend the night sleeping and preening on the water and disperse as soon as it is light, to commence feeding again.

06.10 hrs. Straggling flock of 100 or more Wilson's Petrels crossed our bows; many others in various directions around us.

06.15 hrs. Small black and white shearwater, probably Persian; many Wilson's Petrels, one or two in our wake.

07.30 hrs. to 07.50 hrs. One smallish sooty black shearwater and several Wilson's Petrels passed but comparatively few about now.

07.55 hrs. Two smallish sooty black shearwaters flying near bows; longish tail, shortish black beak; too small for Wedgetailed Shearwaters, may be Mascarene Black Petrels (*Pterodroma aterrima*).

08.00 hrs. to 08.45 hrs. Small number of Black Petrels (?) and one or two Wilson's Petrels; Black Petrels (?) fly like small shearwaters.

08.50 hrs. to 09.30 hrs. Swell increasing and sea choppy; sky overcast. Small numbers of Black and Wilson's Petrels passed; none in wake.

10.07 hrs. Tropic-bird reported flying round ship; no petrels.

10.45 hrs. Solitary blackish shearwater—probably Mascarene Black Petrel.

11.08 hrs. Single Wilson's Petrel.

11.55 hrs. Two Black Petrels (?) crossed our bows flying S; we are now about 25 to 30 miles from land.

12 Noon. Lat. 12.53N. Long. 51.57E. Distance run 358 miles; average speed 15.24 knots.

Confused and choppy sea; strong wind from S; overcast, with weak sunshine at times; visibility good but haze in distance.

13.40 hrs. to 13.55 hrs. Tropic-bird near bow; 5 Black Petrels (?) all flying independently, crossed bows flying S.

14.54 hrs. Persian Shearwater (*P. lherminieri persica*), small, black above white below, crossed flying S., followed by a Brownwinged Tern (*Sterna anaethetus*).

15.00 hrs. Two Wedgetailed Shearwaters (*P. pacificus*), very much the same colour but larger than the Black Petrel (?), crossed flying N.

15.05 hrs. 5 or 6 Black Petrels (*P. aterrima*?) flying to port.

15.15 hrs. 3 or 4 Persian Shearwaters and 4 or 5 Black Petrels (?) flying ahead.

15.30 hrs. to 15.40 hrs. Many Black Petrels (?) flying in various directions, usually solitary, with a few Persian Shearwaters and one Indian Tropic-bird (*Phaethon indicus*).

15.45 hrs. Large dark sooty shearwater crossed our bows flying S.; its flight was more gull like; it plunged once into the water; wings longer and sharper than in Black Petrel (?) and had more flapping flight—unidentified.

16.28 hrs. Several Persian Shearwaters, Black Petrels (?) and one Brownwinged Tern crossed, flying S.

16.32 hrs. Another Indian Tropic-bird circled the ship; small numbers of Black Petrels (?) and Persian Shearwaters passing.

16.50 hrs. Many Persian Shearwaters, many Black Petrels (?) and one tropic-bird passing.



16.55 hrs. Still many Persian Shearwaters and Black Petrels (?). Socotra is now in sight on starboard bow.

17.15 hrs. to 17.30 hrs. Small numbers of Persian Shearwaters and Black Petrels (?).

17.40 hrs. Black Petrel (?) settled on water, consuming something; three birds looking like Nodies (*Anous stolidus*) crossed flying S.

18.10 hrs. to 18.30 hrs. (Dusk) Another Indian Tropic-bird passed; Black Petrels (?) numerous, Persian Shearwaters in smaller numbers; we are now in the lee of Socotra, distance 20 to 25 miles; sea fairly calm; visibility good.

August 6th. Indian Ocean.

06.15 hrs. to 06.30 hrs. Shortly after sunrise; strong wind from SW.; heavy monsoon swell, choppy sea; visibility very good. No birds.

07.50 hrs. Solitary Black Petrel (?) crossed, flying N.

08.55 hrs. Black Petrel (?) crossed flying S.

09.05 hrs. Another Black Petrel (?) flying S., very rapidly.

10.25 hrs. to 11.30 hrs. Black Petrel (?) flying N.; Black Petrels (?) were seen at the rate of about one every 15 minutes, mostly flying across the wind, northwards.

11.35 hrs. to Noon. No birds.

12. Noon. Lat. 12.04N. Long. 57.44E. Distance run 346 miles; average speed 14.73 knots.

Sea and wind have moderated slightly but typical SW. Monsoon conditions prevail; sunny; visibility good.

to 13.00 hrs. No birds.

15.00 hrs. to 16.30 hrs. No birds seen.

16.37 hrs. to dusk. One Black Petrel (?) crossed, flying S.; another about 17.00 hrs. and a third about 18.00 hrs.

20.30 hrs. Mascarene Black Petrel (*Pterodroma aterrima*) came aboard; it knocked against one of the lights on the Sports deck and was brought to me.

*Description and Measurements.* Upper and lower plumage sooty blackish brown with a few grey feathers on abdomen near vent; small, darker patches immediately in front of eyes; legs and webs dusky flesh with a yellowish tinge when first caught; outer toes and webs more dusky and inner more flesh coloured; nails jet black, small and sharply curved; beak short and black. Wing 257 mm.; beak to gape 34 mm.; culmen 29 mm.; tarsus 37 mm.; eye dusky black. This specimen confirms the identification of the numerous blackish, shearwater-like birds, too small and slim for Wedgetailed Shearwaters, seen during the past three days. When close, the small, shorter beak is a good distinguishing character but often, when the bird is a little distance away and there is nothing with which to gauge its size, it is difficult to distinguish it from the Wedgetailed Shearwater. This bird was liberated the following morning, after some Mallophaga parasites had been removed from it; it was in fresh, unworn plumage.

August 7th. Indian Ocean.

05.50 hrs. to 06.10 hrs. Moderate swell, little choppy; moderate to light breeze from SW.; visibility good; 6 dark, medium-sized shearwaters crossed, flying independently, some distance away; seemed to be either Wedgetailed Shearwaters or Black Petrels.

06.15 hrs. to 07.07 hrs. Small numbers of medium-sized, dark shearwaters crossing, flying S.; mostly too far for certain identification.

07.20 hrs. to 07.40 hrs. Indian Tropic-bird ranged up on starboard side, flew round and dropped astern; 2 Mascarene Black Petrels flying independently to port.

07.45 hrs. to 08.00 hrs. Many dark, shearwater-like birds passed, mostly flying S.; majority appeared to be Mascarene Black Petrels but some of them, which seemed rather larger and more stoutly built, were probably Wedgetailed Shearwaters. One small petrel, rather far off, appeared to have white underparts.

08.15 hrs. to 08.55 hrs. Two small petrels passed closer to port; they definitely have white underparts; they glide more than Wilson's, are about the same or a little smaller in size, have dark wings and white rumps. Several Mascarene Petrels continue to pass but large flights appear to be over.

09.25 hrs. Three Sooty Terns (*Sterna fuscata*) flying high, southwards; 3 more Mascarene Black Petrels and one small petrel with white underparts.

09.32 hrs. Two more Black Petrels.

09.35 hrs. 16 Sooty Terns, flying high, crossed our bows flying southwards; 5 minutes later a large, straggling flock of 30 followed them.

09.40 hrs. Indian Tropic-bird passed.

09.45 hrs. Another Mascarene Black Petrel and another white-bellied petrel.

10.37 hrs. to 10.50 hrs. Several Mascarene Black Petrels crossed our bows, flying N.

10.54 hrs. 2 medium-sized, dark shearwaters, larger and more heavily built than Black Petrels; wings are wider and beak longer; there is little doubt that these are Wedgetailed Shearwaters (*P. pacificus*). Possibly some of those seen earlier were also of this species.

11.03 hrs. 2 more white-bellied, white-rumped small petrels crossed our bows close in; they could be well seen; tail is almost square; wing-lining white, belly white, chest and throat black, rump white; they answer well to the description of the Whitebellied Storm Petrel (*Fregetta grallaria*). I suspect that they are of this species, but possibly they might be the Blackbellied Storm Petrel (*F. tropica*).

11.05 to 11.15 hrs. Two more Mascarene Black Petrels passed.

11.25 hrs. 3 more white-bellied storm petrels passed; they glide low over the swell, much more so than Wilson's; they often drop their feet and paddle; they do not join our wake.

11.30 hrs. Solitary Sooty Tern flying close to port; Indian Tropic-bird crossed, flying S. about 50 ft. above water; one Wedgetailed Shearwater and one Mascarene Black Petrel.

11.45 hrs. 2 more Whitebellied Storm Petrels close to our bows; 2 Wedgetailed Shearwaters rose off the water close to our bows; their



longer beaks could be seen distinctly; several more crossed soon afterwards, all flying S.

11.50 hrs. to Noon. 2 more Wedgetailed Shearwaters and 2 more Whitebellied Storm Petrels; the latter seem generally to fly in pairs, but sometimes singly. One Mascarene Black Petrel crossed.

12 Noon. Lat. 10.24N. Long. 63.25E. Distance run 351 miles; average speed 14.95 knots.

Swell moderate, little choppy with low waves breaking; light breeze from SW.; bright and sunny; visibility excellent.

12.05 hrs. to 12.30 hrs. Small numbers of dark shearwater-like birds passing; majority appear to be Wedgetailed but two were certainly Mascarene Black Petrels. Another Whitebellied Storm Petrel at 12.30 hrs.

12.45 hrs. One Wedgetailed Shearwater and 2 Whitebellied Storm Petrels crossed.

14.50 hrs. to 16.15 hrs. One Wedgetailed Shearwater rose from water, flew round and settled again; several others crossed from time to time together with one Mascarene Black Petrel.

16.20 hrs. Party of 15 to 20 Sooty Terns, circling 100 ft. above water, passed slowly N., sun glistening upon their white underparts.

16.40 hrs. Single Whitebellied Storm Petrel passed. Sea has now moderated into a long, slow swell, slightly choppy with an occasional wave breaking; visibility excellent.

17.50 hrs. Wedgetailed Shearwater flying N.; another Whitebellied Storm Petrel passed.

18.05 hrs. Another Whitebellied Storm Petrel close in on port bow; line down centre of abdomen could be distinguished; no other birds seen before dusk.

#### August 8th. Indian Ocean.

06.00 hrs. to 11.20 hrs. Slight breeze from SE.; sea smooth with long swell and slight ripple; sunny; visibility excellent. No birds.

11.21 hrs. Solitary large, dark brown shearwater (*Puffinus* sp.) flying S.; possibly *P. carneipes*, the Pinkfooted Shearwater; it being too stout for *P. pacificus*. No other birds before noon.

12 Noon. Lat. 09.02N. Long. 69.13E. Distance run 355 miles; average speed 15.10 knots.

Noon to 16.00 hrs. Slight swell and ripple; fine but overcast. No birds.

16.10 hrs. Solitary dark shearwater passed far out.

16.20 hrs. to 18.00 hrs. No birds.

#### August 9th. Indian Ocean.

Approaching Ceylon—Passed Minicoy Antoll about 04.00 hrs.

06.20 hrs. Sea calm, with very slight swell and ripple; very light breeze from S.; fine but slightly overcast; visibility excellent.

06.30 hrs. Two Wilson's Petrels flying to and fro across our wake.

06.40 hrs. to 07.20 hrs. Several Wilson's Petrels passed; at 07.00 hours there were four quartering our wake and others passing.

08.15 hrs. 5 Wilson's Petrels in wake.

09.10 hrs. to 11.30 hrs. Wilson's Petrels in wake gradually increased in number until 25 to 30 were flying to and fro; others crossed our bows.

12 Noon. Lat. 07.45N. Long. 75.11E. Distance run 365 miles; average speed 15.52 knots.

Sea moderately calm, with slight, long swell and little ripple with occasional breaking waves; some cloud but generally sunny; visibility excellent.

12.15 hrs. 15 to 20 Wilson's Petrels in wake.

12.40 hrs. Single Wilson's Petrel in wake.

13.45 hrs. No petrels in wake; no birds of any sort to be seen.

15.40 hrs. Medium-sized, dark brown shearwater and one Wilson's Petrel to port; shearwater seems to be a Wedgetailed.

15.45 hrs. Petrels have reappeared; there are now 12 flying in our wake; all appear to be Wilson's.

16.40 hrs. Tropic-bird flew over; red beak; short, sharp tail with brown markings on upper parts; probably a juvenile. 12 to 20 Wilson's Petrels in wake.

17.05 hrs. Two shearwaters crossed flying S.; moderately large; dark brown, almost certainly Wedgetailed or Greenbilled (*P. pacificus chlororhynchus*) which is the common shearwater of these waters during the summer.

17.35 hrs. Another shearwater. Still 15 to 20 Wilson's Petrels in wake.

17.45 hrs. to 18.35 hrs. Several more Wilson's Petrels and dark brown shearwaters passed; at dusk there were still 4 or 5 Wilson's in wake.

20.30 hrs. 2 Wilson's Petrels (*Oceanites oceanicus*) were brought to me alive; both had hit the lights on the Sports deck and fallen down unharmed. Both typical Wilson's; they roosted quietly in a cupboard in my cabin and were released the following morning, after yielding some Mallophaga parasites. Both in fresh, unworn plumage.

August 10th. Indian Ocean. Arrived Colombo about 8 a.m.

05.45 hrs. Sea smooth, with slight swell and ripple; light breeze from S.; fine; visibility good. Several petrels can be distinguished flying to and fro in our wake. Colombo light is in sight.

06.15 hrs. to 06.40 hrs. Several Wilson's Petrels crossed, flying S. One Tropic-bird, in far distance astern; one shearwater crossed, undoubtedly a Greenbilled; 12 or more Wilson's Petrels in wake.

06.50 hrs. We are now approx. 4 miles from land; one Wilson's Petrel crossed our bows; those in wake gradually disappeared as we closed the harbour.

This voyage was chiefly notable for the very large number of Mascarene Black Petrels (*Pterodroma aterrima*) observed in the Gulf of Aden and in the vicinity of Socotra and the Whitebellied Storm Petrels seen on the 7th August. I had not definitely identified the Mascarene Black Petrel on previous voyages. On this voyage, the identity was confirmed by the one that came aboard on the evening of the 6th August. Persian and Wedgetailed Shearwaters were, as usual, seen in the vicinity of Socotra. It is curious that on the 7th August, when white-bellied storm petrels were numerous, not a

single Wilson's Petrel was observed and that white-bellied storm petrels should have been seen only on that day. I have not previously seen this small petrel between Colombo and Aden, but I saw many that appeared to be of the same species near Lat. 18.20N. Long. 60.25E. between Aden and Karachi on a voyage in July 1945.

Undoubtedly there is room for considerable research into the oceanic birds of the northern Indian Ocean; not only is very little known of the species of migratory petrels and shearwaters that visit these waters during the summer months when they are not breeding, but it is obvious that several species must nest either on or in the vicinity of Socotra, as both Persian and Wedgetailed Shearwaters have been observed frequently in the vicinity of Socotra throughout the year.

On our return to Colombo, Mr. D. D. Condon was able to persuade Mr. G. N. Grisenthwaite, Fishery Expert in the Trawler 'Braconglen' to keep notes on the oceanic birds encountered on his fishing trips. Although in no way a trained observer, Mr. Grisenthwaite is familiar with shearwaters and petrels which he has met in European waters; so he has been able to furnish some very interesting observations which throw light upon the density and distribution of migratory shearwaters and petrels in South India and Ceylon waters, and on the dates of their departure to the South.

The following are extracts from his reports, submitted through Mr. Condon:—

*August 22nd.* Left Colombo on north west course to Cape Comorin; picked up large flocks of Wilson's Petrels. Soon after leaving Colombo, there were scores of them. About 30 miles out on NW. course where sea's depth is very great, all petrels disappeared; there were no birds at all. 120 miles out on this course, off the South Indian coast, observed first shearwater and large numbers of Wilson's Petrels reappeared.

*Note.* Shearwater was probably the Greenbilled (*P. pacificus*) or Pinkfooted (*P. carneipes*), or both; he also saw many birds which, from his descriptions, were obviously Sooty and Bridled Terns (*S. fuscata* and *S. anaethetus*). He states that these terns never settle on the water, probably, he suggests, because of the large numbers of sharks always present! They come from the southwest in the morning and returned in the afternoon; they were not seen after 5 p.m. He assumes that they go to the Maldives or Laccadives to roost. On this voyage, Mr. Grisenthwaite also saw two tropic-birds and a dark brown 'gannet' (probably the Brown Booby, *Sula leucogaster*); it was taking flying-fish on the wing, when they left the water; he suggests that it was doing so, instead of diving for fish, as the sea was 'alive with sharks'!

*September 9th to 15th 1953.* Left Colombo 15.30 hrs. South-west monsoon blowing fairly fresh to strong; usual Wilson's Petrels in large numbers, gradually left behind after leaving continental shelf; this shelf of shallow water extends on a course direct for the South Indian coast, i.e. NNW.—exactly 14 miles from Colombo.

*September 10th.* Vessel engaged in deep sea trawling off Travancore coast, approx. 15 miles SE. of Cape Comorin. Many Bridled Terns observed not far from ship. Also Wilson's Petrels in flights of 2, 4, 6 and 8 but never more.



September 11th. West of Cape Comorin. Strong SW. wind; bird-life absent with exception of Wilson's Petrels, 21.30 hrs. Chief Officer reported Wilson's Petrel in his cabin; it had numerous parasites under the wing and amongst the breast plumage.

September 12th. West of Cape Comorin. One party of shearwaters or terns, evidently feeding, too far off for identification; another Wilson's Petrel came on board.

September 13th. Southwest of Cape Comorin; large numbers of shearwaters noticed with many Wilson's Petrels in company. Another Wilson's Petrel came aboard.

September 14th. Southwest of Cape Comorin. A few shearwaters noticed.

September 15th. Returned to Colombo.

September 18th to 23rd. SW. monsoon still blowing; course for Cape Comorin. A few miles out from Colombo passed several Wilson's Petrels but not so plentiful as during July, August and early September. Off Cape Comorin and Muttam for 5 days until 23rd September. Shearwaters, previously seen in this area, were gone; only on one occasion did I see 4 birds of the small sooty kind (*P. pacificus*?). Each and every day large flocks of Wilson's Petrels appeared—by this I mean hundreds. Our seamen, when gutting the fish, use old paint drums in which they put the offal. When they are full, they empty them overboard. This causes a distinct oil patch and it is marvellous to watch the little Wilson's Petrels flying in from every point of the compass until they are like a cloud over the oil patch. The shearwaters used to be seen feeding like this, but even cheap feeding is no attraction now; they have just gone.

September 30th to October 7th. Still SW. monsoon; no sea birds sighted between Colombo and Cape Comorin. Off West Muttam Light, and later 30 miles west of Cape Comorin, large flocks of Wilson's Petrels seen every day.

October 2nd. Caught one Wilson's Petrel after dark.

October 3rd. About 20.00 hrs., 16 Wilson's Petrels stranded on deck; four retained.<sup>1</sup>

October 7th. Leaving fishing grounds at 06.30 hrs. Still flocks of Wilson's Petrels to be seen but no shearwaters.

October 8th. Returned to Colombo.

Mr. Grisenthwaite is very emphatic that the Wilson's Petrels are seen only over the Continental Shelf area and never in the deeper water beyond this shelf.

October 13th to 23rd. Course as on previous voyages. Leaving Colombo in exceptionally fine weather only birds seen for 30 miles were occasional pairs of terns. No Wilson's Petrels were seen off Malabar Coast and Cape Comorin. Next day, however, Wilson's Petrels were seen in quite large numbers. With the exception of a few swallows (probably *Hirundo rustica gutturalis*) and other birds flying low over the water, obviously migrating towards the Gulf of Mannar, nothing further was seen. Returning to Colombo and whilst about 15 miles out, my old friend the Gannet (Brown Booby?)

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<sup>1</sup> See concluding note for identifications.

was sighted, a single bird only. I could not see its colour well as the day was just dawning, but the plumage appeared either dirty white or cream with a light beak. He appears to stay well off the land, because 12 miles from port he had left us.

*October 31st to 9th November.* Course as before. With the exception of an occasional tern, no birds were sighted; the Wilson's Petrels had all disappeared.

On Sunday November 8, however, I witnessed the spectacle of a huge flock of Wilson's Petrels, probably reaching for over a mile, crossing the bows of our ship, flying low down on the water and making a beeline almost SW. Mr. O'Connor, the second engineer, watched these birds with me. Mr. W. G. Mitchell, the skipper, says he has witnessed a similar flight before this and that the Wilson's Petrels will be back again during May next year.

*Note by Mr. Condon.* The Wilson's Petrels were seen about 140 miles NW. by W. of Colombo. Mr. Grisenthwaite said that there were thousands, flying mostly 20 or more abreast. As usual they were seen on the Continental Shelf. They appeared to be coming from the Indian Coast and, while he watched, there was no pause or hesitation, no feeding or resting, just this steady, fast mass-flight, moving South-west.

*November 14th to 24th.* Course approximately as on previous voyages. 'We were for the most of the time fishing off the Malabar Coast. The most interesting feature with regard to bird-life was the total absence of Wilson's Petrels. It is quite obvious that I witnessed the migration of these birds on Sunday November 8. I am, however, still puzzled as to where such a huge flock had congregated before their flight. From all appearances, it would seem that they came from the shallow water regions of the Gulf of Mannar as the flock was flying in a straight south-west direction and came from the coast to the north-east, which would be straight out from the Gulf. All the petrels have now completely gone.'

From Mr. Grisenthwaite's observations it is evident that the shearwaters (probably both *P. pacificus chlororhynchus* and/or *P. carneipes*) left Indo-Ceylon waters on or about the 20th September on their southward migration but Wilson's Petrels remained until the 8th November on which date a very large migration was observed. Regarding this migration, it is interesting to speculate from where the petrels had collected to form the very large concourse that was noted by Messrs. Grisenthwaite and O'Connor. Many of them were probably birds that had spent at least the latter months of their sojourn in our northern oceans, in the relatively shallow waters of the Continental Shelf of India and Ceylon, for these diaries show that there have been many Wilson's Petrels in Indo-Ceylon waters from at least early August to November 8th. Their numbers had probably been augmented, however, by other petrels from further north up the west coast of peninsular India, for there is believed to be a clockwise movement of Wilson's Petrels round the north Indian Ocean and moving south by way of the waters off Ceylon in September and November (Gibson-Hill 1948, p. 445).

On the other hand, as Mr. Grisenthwaite is very insistent that the birds all appeared to be flying on a south-westerly course out of the

Gulf of Mannar, it is possible that some, at any rate, came from the Bay of Bengal, passing down the east coast of India and through the Palk Straits and Gulf of Mannar between India and Ceylon. This course would be on the direct south-westerly route from the Bay of Bengal to the known breeding haunts of these petrels in Antarctica and the southern islands. Further observations on the movements of petrels and shearwaters in the Indian Ocean and Bay of Bengal are awaited with great interest.

#### SUMMARY

1. Extracts from the diaries of two voyages are given, showing the scarcity of petrels and shearwaters in the Indian Ocean and Gulf of Aden in early February and their abundance in early August.

2. The occurrence of phalaropes (*Phalaropus* sp.) in the Gulf of Aden in February is recorded and of the Mascarene Black Petrel (*Pterodroma aterrima*) in early August; also of a small white-bellied petrel, believed to be either the whitebellied Storm Petrel (*Fregetta grallaria*) or the Blackbellied Storm Petrel (*F. tropica*) in Lat. 10.24N. and Long. 63.25E.

3. Dates of departures in 1953 of shearwaters and Wilson's Petrels (*Oceanites oceanicus*) from Indo-Ceylon waters are given.

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#### ADDENDUM NOTE

Seven specimens of Wilson's Petrels, (*Oceanites oceanicus*), caught in the 'Braconglen', were sent to the British Museum (Natural History) for determination of the races. Mr. J. D. Macdonald writing on 24th March, 1954, reports:—

'Your specimens are all in moult, but in four of them the new primaries appear to be full grown. These specimens are:—

(1) 12-9-1953. 18 miles West of Cape Comorin, W.136. If fully grown, this bird could be *magellanicus*, and as a second alternative it could be *parvus*.

(2) 11-9-1953. 29 miles South of Cape Comorin, W.140.5. As above.



(3) 12-9-1953. 25 miles South-west of Cape Comorin, W.145. Could be either *oceanicus* or *parvus* or even a very small individual of the Atlantic-breeding *exasperatus*.

(4) No. P.4 collected 3-10-1953. W.154. Almost certainly *O. o. exasperatus*.'

The above report would appear to indicate that Wilson's Petrels, from several separate breeding localities, congregate together in the northern Indian Ocean during the summer months or non-breeding season.